

70



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/843,358	04/24/2001	Zheng Chen	MS1-686US	8976

22801 7590 02/09/2005  
LEE & HAYES PLLC  
421 W RIVERSIDE AVENUE SUITE 500  
SPOKANE, WA 99201

EXAMINER

LE, NHAN T

ART UNIT PAPER NUMBER

2685

DATE MAILED: 02/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/843,358

Applicant(s)

CHEN ET AL.

Examiner

Nhan T Le

Art Unit

2685

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 April 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-60 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-60 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained tOuyangugh the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a wOuyangle would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1, 2, 3, 4, 5, 6, 7, 9, 10, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 29, 30, 31, 32, 33, 36, 37, 38, 39, 40, 41, 42, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 59, 60, are rejected under 35 U.S.C. 103(a) as being unpatentable over Ouyang (US 6,674,372) in view of Chen (US 6,014,615).

As to claims 1, 29, 36, 51, 52, Ouyang teaches Chinese input method comprising: a keypad of number keys, the number keys having associated letters (see fig. 1, number 100, col. 7, lines 10-45); a language system to receive an input string entered via the keypad that is representative of one or more phonetic characters and generate likely language characters based on the input string (see fig. 1, numbers 400, 600, 700, col. 7, lines 10-45); a display to present the likely language characters for user selection (see fig. 1, number 200, col. 7, lines 10-45); Ouyang fails to teach the language system being configured to facilitate input of the input string and selection of a language character without switching modes between input and selection. Chen teaches the language system being configured to facilitate input of the input string and selection of a language character without switching modes between input and selection

Art Unit: 2685

(see fig. 4, col. 10, lines 50-67, col. 11, lines 1-35). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of Chen into the system of Ouyang in order to speed up the language conversion process.

As to claims 2, 25, 30, 38, the combination of Ouyang and Chen teaches a mobile device, wherein the phonetic characters are Chinese Pinyin and the language characters are Chinese Hanzi (see Chen Abstract).

As to claims 3, 4, 31, 37, 39, 40, 53, 54, the combination of Ouyang and Chen teaches a wherein the likely language characters are presented on the display in an index that associates selection keys of the keypad with the language characters so that user entry of a selection key results in a selection of a corresponding language character and user entry of a non-selection key results in further input (see Chen col. 13, lines 28-53); the selection keys being selected based on whether the letters associated therewith follow the phonetic characters already entered (see Chen col. 13, lines 54-67, col. 14, lines 1-67, col. 15, lines 1-14).

As to claims 5, 32, 41, 55 the combination of Ouyang and Chen teaches wherein the language system includes an association module that automatically presents the language characters as the user depresses individual keys (see Chen col. 13, lines 54-67, col. 14, lines 1-67, col. 15, lines 1-14).

As to claim 6, 33, the combination of Ouyang and Chen teaches the device, wherein the language system includes a sentence-based search engine to derive the

language characters based on context of the input string within one or more words of a common sentence (see Chen col. 17, lines 40-67, col. 17, lines 1-3).

As to claims 7, 9, 10, 42, the combination of Ouyang and Chen teaches a mobile device, wherein the language system includes a language model to statistically derive the language characters; converts the phonetic characters to the language characters (see Chen col. 13, lines 54-67, col. 14, lines 1-67, col. 15, lines 1-14, col. 17, lines 40-67, col. 17, lines 1-3); includes a direct key-based search engine that generates the language characters based on a key sequence entered on the keypad in lieu of converting the phonetic characters to the language characters (see Chen col. 13, lines 54-67, col. 14, lines 1-67, col. 15, lines 1-14, col. 17, lines 40-67, col. 17, lines 1-3).

As to claim 15, the combination of Ouyang and Chen teaches a scroll control key to present other likely language characters (see Chen fig. 2a, 2b, col. 7, lines 55-67, col. 8, lines 1-28).

As to claim 16, the combination of Ouyang and Chen inherently teaches the device embodied as a mobile phone.

As to claims 17, 45, 46, Ouyang teaches a device, comprising: a keypad of number keys, the number keys having associated letters of an alphabet (see fig. 1, number 100, col. 7, lines 10-45); Ouyang fails to teach a direct key-based search engine that generates possible language characters that are not part of the alphabet based on a key sequence entered on the keypad. Chen teaches a direct key-based search engine that generates possible language characters that are not part of the alphabet based on a key sequence entered on the keypad (see Chen col. 13, lines 54-

67,col. 14, lines 1-67, col .15, lines 1-14, col. 17, lines 40-67, col. 18, lines 1-3).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of Chen into the system of Ouyang in order to provide a user friendly device.

As to claims 18, 22, the claims are rejected as to claim 2,

As to claim 19, the combination of Ouyang and Chen teaches wherein the language system includes an association module that automatically presents the language characters as the user depresses individual keys (see Chen col. 13, lines 54-67,col. 14, lines 1-67, col .15, lines 1-14, col. 17, lines 40-67, col. 17, lines 1-3).

As to claim 20, the combination of Ouyang and Chen inherently teaches the device embodied as a mobile phone.

As to claims 21, 47, 48, 59, Ouyang teaches the device, comprising: a keypad of number keys, the number keys having associated letters of an alphabet (see fig. 1, number 100, col. 7, lines 10-45); a display to present the likely language characters for user selection (see fig. 1, number 200, col. 7, lines 10-45). Ouyang fails to teach an association module that associates a key sequence with language characters that are not part of the alphabet ; and a display to present the possible language characters as the user depresses individual keys based on the key sequence. Chen teaches an association module that associates a key sequence with language characters that are not part of the alphabet (see fig. 4, number 420, col. 11, line 65- col. 12, line 6); and a display to present the possible language characters as the user depresses individual keys based on the key sequence (see Chen col. 13, lines 54-67,col. 14, lines 1-67, col.

15, lines 1-14, col. 17, lines 40-67, col. 17, lines 1-3). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of Chen into the system of Ouyang in order to make it more convenience to users.

As to claim 23, the combination of Ouyang and Chen inherently teaches a mobile device, embodied as a mobile phone.

As to claims 24, 49, 50, 56, 57, Ouyang teaches the device, comprising: a keypad of number keys, the number keys having associated letters of an alphabet (see fig. 1, number 100, col. 7, lines 10-45); a language system string (see fig. 1, numbers 400, 600, 700, col. 7, lines 10-45) to receive an input string entered via the keypad; and a display to present the language characters for user selection (see fig. 1, number 200, col. 7, lines 10-45). Ouyang fails to teach the input that is representative of one or more phonetic characters and convert the phonetic characters to language characters that are not part of the alphabet using a statistical language model that utilizes at least one neighboring word in a common sentence. Chen teaches the input that is representative of one or more phonetic characters and convert the phonetic characters to language characters that are not part of the alphabet using a statistical language model that utilizes at least one neighboring word in a common sentence col. 13, lines 54-67, col. 14, lines 1-67, col. 15, lines 1-14, col. 17, lines 40-67, col. 18, lines 1-3). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of Chen into the system of Ouyang in order to make it more convenience to users

As to claims 26, 60, the combination of Ouyang, Chen, and Chang inherently teaches the device embodied as a mobile phone.

2. Claims 8, 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ouyang (US 6,674,372) in view of Chen (US 6,014,615) further in view of Kantrowitz (US 6,292,772).

As to claims 8, 58, the combination of Ouyang and Chen fails to teach a mobile device, wherein the language system includes a character-based bigram language model and a word-based N-gram language model, where  $N > 2$ . Kantrowitz teaches a character-based bigram language model and a word-based N-gram language model, where  $N > 2$  (see col. 2, line 50- col.3, line5). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of Kantrowitz into the system of Ouyang and Chen in order to identify the language of individual words in isolation with high accuracy.

3. Claims 12, 13, 34, 35, 43, 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ouyang (US 6,674,372) in view of Chen (US 6,014,615) further in view of Kiraz (US 6,272,464).

As to claims 12, 13, 34, 35, 43, 44, the combination of Ouyang and Chen fails to teach the device as recited wherein the language system comprises: a first name model to detect first names in the input string; a surname model to detect surnames in the input string; and a character-based bigram language model. Kiraz teaches a first name model to detect first names; a surname model to detect surnames; and a character-based bigram language model (see col. 4, line 49- col. 5, line 15 col. 6, line 61- col. 7,



Art Unit: 2685

line 10). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of Kiraz into the system of Ouyang and Chen in order to identify potential language origins of the name.

4. Claims 14, 27, 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ouyang (US 6,674,372) in view of Chen (US 6,014,615) further in view of Matsuzuka et al (US 5,838,972).

As to claims 14, 27, 51, the combination of Ouyang and Chen teaches the device, wherein the language system comprises: a resident language model residing on the mobile device to statistically derive the language characters using a first statistical language model (see fig. 4, number 420, col. 11, line 65- col. 12, line 6). The combination of Ouyang and Chen fails to teach a nonresident language model residing on a remote server, communicatively coupled to the mobile device, to statistically derive the language characters using a second statistical language model. Matsukara teaches a nonresident language model residing on a remote server to statistically derive the language characters using a second statistical language model (see col. 1, line 47- col. 2, line 3). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of Matsukara into the system of Ouyang and Chen in order to provide additional server due to a large dictionary of words.

5. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ouyang (US 6,674,372) in view of Chen (US 6,014,615), Matsuzuka et al (US 5,838,972) and further in view of Kantrowitz (US 6,292,772).

As to claim 28, the combination of Ouyang, Chen and Matsuzuka fails to teach a system, wherein the first statistical language model is a character-based bigram language model and the second statistical language model is a word-based N-gram language model, where  $N > 2$ . Kantrowitz teaches a character-based bigram language model and a word-based N-gram language model, where  $N > 2$  (see col. 2, line 50- col.3, line5). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of Kantrowitz into the system of Ouyang, Chen and Matsuzuka in order to identify the language of individual words in isolation with high accuracy.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Gou (US 6,686,852) teaches keypad layout for alphabetic character input.

Chen (US 6,009,444) teaches text input device and metOuyangd.

Hseih (US 6,636,163) teaches numeric key-based Chinese address inputting metOuyangd.

Nakayama et al (US 4,531,119) teaches metOuyangd and apparatus for key-inputting Kanji.

Any inquiry concerning this communication or earlier communications from the examiner sOuyanguld be directed to Nhan T Le wOuyangse telepOuyangne number is 703-305-4538. The examiner can normally be reached on 08:00-05:00 (Mon-Fri).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban can be reached on 703-305-4385. The fax number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Nhan Le

*Nguyen T. Vo*  
2-7-2005

NGUYEN T. VO  
PRIMARY EXAMINER